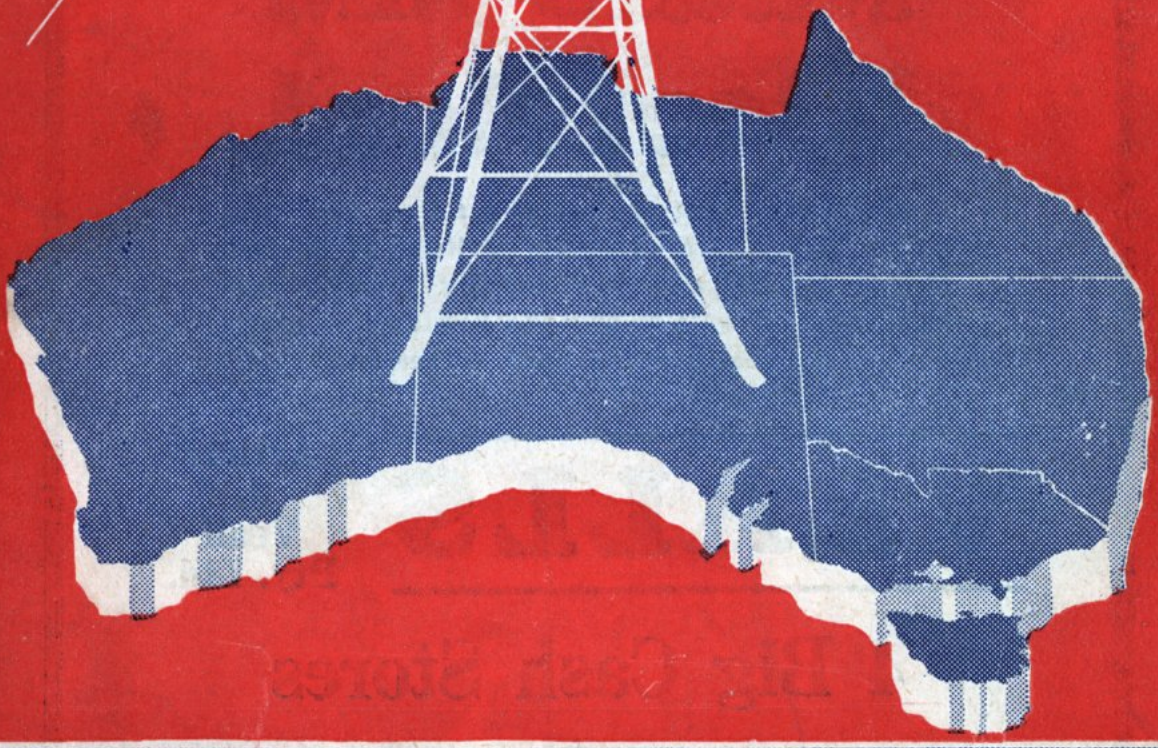
AMATEUR RADIO



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"AMATEUR RADIO"

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INDEX

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TYPE.	Triodes. TC 03/5	TC 04/10	TC 1/75	TB 2/250	Screen-Grid. Valves. QC 05/15	QB 2/75	
Filament voltage	4.0	4.0	10·0	11·0	4·0	10·0	V
Filament current*	0.29	1	1·6	3·8	1	3·25	A
Saturation current*	100	400	1500	2000	400	2000	mA
Anode voltage	150-300	200-500	800-1500	1000-2000	400-500	2000	V
Screen-grid voltage	—	—	—	—	75-125	300-500	V
Max. anode dissipation	6	10	75	150	15	75	W
Anode dissipation on test	10	20	100	200	20	100	W
Max. screen-grid dissipation	—	—	—	—	3	15	W
Amplification factor*	6	25	25	25	225	200	
Mutual conductance (slope)*	2.3	2.0	5	4	1·4	1·4	mA/V
Int. resistance*	2500	12,500	5000	6000	160,000	150,000	R
Anode-grid capacity	—	—	—	—	.001	.02	mm/F

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EDITORIAL

"The old order changeth,
Yielding place to new."
—Tennyson.

One wonders, when Tennyson wrote that now famous epigram, whether he realised what a tremendously wide application in our everyday lives it would have. Everything in this world is in a continual state of evolution yet. Can one conceive of anything that has shown such changes or had such a meteoric rise as our science of radio? It is not such a far cry back to the days before valves, yet to-day there is a valve for every conceivable purpose. Every new development seems to open up an ever-widening field of investigation and experiment. Surely our hobby is an experimenter's paradise, providing opportunities for research in any one of a thousand different phases of the subject.

But let us ask ourselves one question: Are we making full use of our hobby—are we worthy of the name of experimenters, or are we merely dabblers? Here in Australia we have every possible opportunity for research.

For instance, if a particular meter, of which we are not in possession, is required, we have the full resources of the Wireless Institute library at our disposal. At our meetings we have the chance of discussing our ideas and receiving or giving help. If we require special privileges to further our line of experiment we have the P.M.G.'s Department always ready to lend a sympathetic ear.

Again, in our magazine, "Amateur Radio," we have a means of disseminating the results of our work, and, finally, if we have not received sufficient inspiration and help from all these things, we have the magnificent trophy donated by our ever generous late Federal president, Mr. S. W. Gadsden, to strive for in annual contest.

Surely there is sufficient incentive; surely there is enough initiative amongst us to make us put as much into our hobby as we take out of it. We are proud of amateur radio and the part it has played. Let our New Year resolution be to strive to make amateur radio proud of us.

The Melbourne Centenary ("Centeenary," or what have you) celebrations are drawing close at hand, and the time is opportune for some bright ideas whereby we can utilise the occasion for some publicity both for the Centenary committee and the W.I.A.

"Amateur Radio" will find space for the discussion of any ideas mooted. In keeping with the usual VK ham spirit, it should be borne in mind that, while the celebrations are specifically confined to VK3, there is not necessarily any reason why the whole of VK should not participate, with VK3 as the fountain head, in boosting Australia and her hams to no small order.

We have a few suggestions on file, but would appreciate an expression of ideas from all VK hams, particularly those in the VK3 capital city.

Surely we can prove ourselves an excellent medium of publicity on such an occasion.

Let us have your ideas, no matter how weak they may seem to you. We can assure you they will be appreciated, and at least the good points of each will be used.

* * * *

While proofing the various notes before going to press, we noticed several stations mentioned as having their cq dx calls answered by sundry sought after "foreigners," but they were not successful in qso-ing owing to their apparent lack of a good set capable of receiving the said dx station.

Always hungry for technical data, we shall be grateful if those gentlemen having made the above comments will kindly furnish us with the details, etc., of their various receivers.

Incidentally, our "laboratory" staff is hard at work designing something special (and cheap) in the way of a "super." So far it has only reached the "draughtsmen's office," but when we do publish it will certainly be worth while.

In the meantime, "what have you" in the way of tech. data on receivers? Something ultraselective for all bands (if possible including 5 m), and **cheap.**

Heterodyne Frequency Meter—Monitor

Electron-Coupled Colpitts, with Voltage Supply Stabilisation.

BY VK6KR

Of all the common types of oscillator circuits the Colpitts appears to be the best for frequency-meter use, since this circuit has great inherent frequency stability by virtue of the low impedance paths between plate and cathode, and grid to cathode. The substantial elimination of harmonics of the oscillator, on account of these low impedance paths, contributes much to the frequency stability of this type of circuit.

Recent developments in tube circuit stabilisation methods have made available circuits which are particularly adapted to further stabilisation of the Colpitts circuit, and which, if properly applied, can be used in the construction of a heterodyne frequency meter of relatively high precision. Reference is made to the so-called electron-coupled circuit described by Dow. In these circuits the frequency stability to changes in load coupled to the oscillator, and to variations in supply voltages, is very high. The Colpitts circuit can be stabilised against variations in supply voltage over a wide frequency range much more successfully than any other circuit.

These three features—inherent stability of the Colpitts oscillator, freedom from frequency variation with applied load of the electron-coupled circuit, and small frequency change with variation of battery voltage obtained with proper voltage stabilisation—when combined in an instrument of good electrical and mechanical construction, produce a frequency-meter particularly suited to amateur use, a meter which can be compared favourably with more elaborate high-precision laboratory instruments, and which will hold its calibration.

Accuracy.

The accuracy with which a frequency meter may be read depends, among other things, upon the type of tuning dial used. No matter how stable or precisely calibrated a meter may be, its frequency setting cannot be reproduced with any greater accuracy than that with which the dial may be read.

The fundamental frequency of the meter to be described can be adjusted to fall between 10 and 90 divisions of a 100 division dial (180 deg.), spreading the frequency over 3.7 kilocycles per dial division. A dial with true vernier indicator, if both the indicator and dial divisions are accurately **machine engraved**, can be read to one-tenth a division, or to within 370 cycles.

Stability.

The principal factors affecting the stability of a meter of this type, as generally used in amateur stations or experimental laboratories, are:—

(1) Variations in temperature.
(2) Variations in supply voltages.
(3) Change of external load.
(4) Substitution of different tubes.

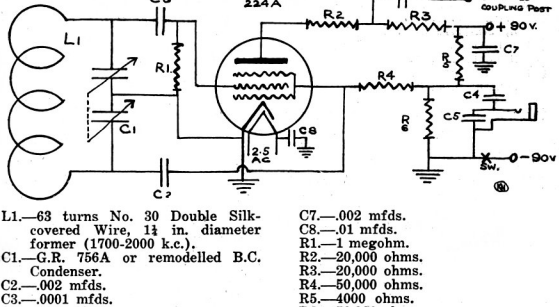
The meter has a temperature coefficient of approximately 100 cycles per degree Fahrenheit over the range of -20 degrees at 2000 kilocycles. Ordinarily this need not require any correction, as normal room temperature will not vary that much, except over long periods of time.

Variations in supply voltage from 112 to 45 volts will cause a frequency change in the 1750-kilocycle band of only 50 cycles, and coupling almost anything to the coupling post of the meter (or even grounding it) will cause a frequency change of not over 10 cycles.

Changing tubes of the same type will cause a maximum frequency change of not over 1 kilocycle at 2000-kilocycles—sufficient to warrant recalibration of the meter. For obvious reasons variations in frequency due to vibration or shock, aging, etc., need not be considered when the calibration of the meter may be checked so readily.

Band-Spread Condenser.

The stability of any oscillator is improved if a comparatively large shunt tuning capacitance is employed, since a large capacitance across the



L1.—63 turns No. 30 Double Silk-covered Wire, 1¼ in. diameter former (1700-2000 k.c.).
C1.—G.R. 756A or remodelled B.C. Condenser.
C2.—.002 mfds.
C3.—.0001 mfds.
C4.—.01 mfds.
C5.—.002 mfds.
C6.—.00002 mfds.
C7.—.002 mfds.
C8.—.01 mfds.
R1.—1 megohm.
R2.—20,000 ohms.
R3.—20,000 ohms.
R4.—50,000 ohms.
R5.—4000 ohms.
R6.—50,000 ohms.

Note.—The values of resistors are fairly critical.

tuned circuit will effectively "swamp out" variations in tube and stray capacitances. In addition, if part of this shunt capacitance is in the form of a fixed condenser, the tuning of the circuit may be spread so that a given frequency range will occupy more divisions of the tuning dial. If the "fixed" capacitance is in the form of a semi-adjustable condenser the spread may be adjusted more readily. In the Colpitts circuit a double-section condenser is required in order that the mid-point of the condenser may be grounded. The capacitance range should be such that the 1700 to 2000 kilocycle band would cover approximately 270 divisions of a 300 division 180 deg. dial.

Alternatively a coil condenser combination could be designed to have a fundamental oscillatory circuit of, say, 3500-4000 k.c., thus giving a greater dial spread at the higher harmonic frequencies.

Tube and Supply Voltages.

The meter uses the type UY224 or UY224-A tube, 2.5 volt A.C. heater supply, and 90 volt "B" battery.

Since the voltage divider is connected across the "B" battery at all times the negative "B" circuit should be opened when finished.

Construction.

The meter is mounted on a ¼-inch aluminium panel to ensure mechanical rigidity, and is enclosed in a shielded cabinet to eliminate hand capacity effects.

Calibration.

Each time before the meter is used either for calibration or measurement, the heater of the tube should be turned on and allowed to operate for at least 15 minutes to warm the tube.

The meter is calibrated by tuning the standard frequency signal to zero beat with an oscillating receiver and then adjusting the frequency meter until a zero beat is secured between the meter and the receiver. Since all of the harmonics of a fundamental frequency will fall at the same point on the tuning dial, one curve drawn for either the fundamental or any of its harmonics will serve as the calibration curve for all ranges of the meter. As many points as possible should be secured, so that the curve will be accurate.

A more precise method of calibrating is to use the frequency meter as a separate heterodyne, the receiver in a non-oscillating but highly regenerative state being adjusted to detect the beat between the standard fre-

quency signal and the frequency meter.

The procedure is as follows:—

(1) With receiver oscillating, pick up standard signal.
(2) Adjust frequency meter until it beats with receiver.
(3) Adjust receiver regeneration control until detector goes out of oscillation.
(4) Carefully retune the receiver and frequency meter slightly until beat between the frequency meter and standard signal is heard in the receiver.
(5) Adjust frequency meter (detector NOT oscillating) until zero beat between frequency meter and standard signal is obtained.
(6) Record frequency of standard signal and setting of frequency meter as one point of calibration.

This method eliminates any error due to the drift in frequency of the short wave receiver, since the receiver is not oscillating. It also reduces the amount of static, power-line noise and other interference which may be present.

Checking the Calibration.

While the meter should hold its calibration over long periods of time it is a simple matter to check one or two points from the standard signal transmissions to be certain that the frequency of the meter has not shifted. It is suggested that the meter be checked at least once a week. If the frequency settings at one or two points coincide with a previous calibration no further checking is required for at least a week. If the meter is out of calibration to any considerable degree it should be either corrected or entirely recalibrated. A quick method of doing this is to place a crystal of known frequency on the grid coil. On turning the dial resonance through, the spot obtained by listening to the click should always be in the same position on the dial.

Use of the Meter.

For measuring the frequency of received signals the frequency meter is adjusted until it is in zero-beat with the receiver, and the frequency is read from the calibration curve. Ordinarily the use of common "B" batteries for a receiver and the frequency meter will provide sufficient coupling. If a very high frequency is being measured it may be necessary to provide additional coupling by running a wire from the meter coupling post near the antenna lead-in, or near to the grid circuit of the radio-frequency amplifier or detector tube.

To measure the frequency of a transmitter the receiver is tuned to zero beat with the transmitter, or any of its harmonics, and then the frequency meter adjusted until it is in zero beat with the receiver; or a headset may be inserted in the meter and the beat between the meter and the transmitter adjusted to zero.

To use the meter as a monitor a headset may be plugged into the meter and the beat between the meter and the transmitter observed, or a wire may be run from the coupling post on the meter to the input of the audio amplifier of the short-wave receiver, and the beat between the meter and the transmitter will be heard in the headset of the receiver. This method is to be preferred, as it obviates the necessity of transferring the headset from the receiver to the monitor, and gives a louder signal, which may be required at high transmitter frequencies.

"ELIMINATION OF B.C.L. TROUBLE."

By VK2EG.

We have all at some time suffered from B.C.L. complaints of interference either from clicks or overtone production. A particular case where I was affected was due to induction and proximity to my own antenna, and a multitude of overtones appeared in the B.C.L. superhet, as well as a pronounced click every time the key was pressed, and the volume of the set was affected considerably also when I came on the air.

The trouble was easily cured by placing an R.F. choke in the B.C.L. set lead-in. The choke must be so constructed that it peaks below the B.C.L. band, otherwise the strength of the signals will be affected. In my case I used 100 turns on a ½ in. former with 36 gauge wire, and the trouble was eliminated, with no sign of overtone reproduction. I think that in many cases of interference where the B.C.L. is close shock is the cause, and not excessive sparking at the key contacts—that is, provided the usual key and mains filters are installed, and someone else may have had the same trouble.

Station VK3LN

S.W. Xmitter.

Crystal controlled on 7021 and 7260 Kc. 247 CO, 247 Doubler, 246 buffer, and 2 Tco 4/10's in P.P. P.A. Keying is in the grid of 246, and is ABSOLUTELY clickless. Every ham who has tried the method has had the same successful result.

The xmitter is completely remotely controlled from either the fireside or the bedside. An automatic CQ caller sends either CQ or CQ DX, and is always used when calling.

Receiver.

AC 235 Det and AC/Pen AMP.

Aerials.

3 x ½ wave forty mtr. Zepps are in use, and a plug system is used for quick changing. They run N.E. S.W., S.E. N.W., and vertical, and are supported by 35, 60 and 90 ft. sticks. The vertical is variable in height from 66 to 125 feet by the use of 20 feet of 1 in. x 1 in. Oregon and 20 feet of ¾ in. copper rod, projecting above the flat top aerial. This is an excellent stunt for the chap with 40 or 50 ft. sticks who wants to try a vertical on forty. Anti-capacity switches throw in either 33, 48 or 66 ft. feeders to any ant.

Broadcast Xmitter.

This is entirely separate from sw xmitter, and is not shown in photo. It consists of 247 CO, 246 Buffer, and Tco 4/10 Heising modulated by a B406, 227, 227, 246, and two 250's in parallel. Resistance coupling is used throughout the speech amps. Two gramophones and a Reiss mike complete the outfit. Power input is 10 watts.

Power Packs.

Five packs are used, all being full wave, and delivering 200, 350, 375, 400 and 500 volts respectively.

HARMONICS.

Message from Wilmer Allison, W5VV, via VK3NY: "Say hello to the gang I met when in Australia; they certainly are a fine bunch of chaps." W5VV is also a very fine chap, and anyone working him can be sure of a good qso.

We hear of the country ham whose shack is situated at the foot of a hill, and who experiences a bad screening effect. Not to be outdone, he erected his antenna on top of the hill, and uses the telephone line as a transmission line. What happens if you want to use the phone, o m?

VK3 SECTION NOTES

Key Section

(Conducted by J. H. Winton, VK3XR.)

New Year Resolutions! What a glorious opportunity to show what the amateur spirit can do. Let us resolve to help the BCL's by avoiding any practice which will interfere with their enjoyment, and by co-operation with them. Their good will means a lot for the well-being of amateurs. Let us help the other fellow as far as it is in our power to do so. Let us all resolve to put the Wireless Institute in a better position than it is now by doing our bit to enrol more members. And, lastly, let us grit our teeth and say to ourselves, "The Fisk Trophy is OURS!"

We have already made a good beginning. The points gained by respective States in the first relay contest (results published this issue) testify to the team spirit existent in Victoria, and, while we were not fortunate enough to be able to congratulate one of the VK3 gang on winning the individual section, our aggregate put us first. "Amateur Radio," while not wishing to be egotistical, lays claim to some of VK3's success by virtue of the information, etc., given on this page in the October issue.

Next contest, we feel sure, will show just what the gang can do when they get going. Best of luck, fellows! And congratulations on the fine effort.

The December meeting justified the hard work spent in arranging subjects for group experiments, and several groups were quickly formed. Outstanding amongst these were the five-metre enthusiasts, who quickly got down to business under the guiding hand of 3KN, and forthwith arranged some interesting experiments.

It appears that 3RS had been experimenting in conjunction with 3AW with the idea of broadcasting a running description of yacht races from a 5 metre rig erected on board one of the yachts. The gear was already built and tests were to be run, so, no doubt, the 5 metre group has done some good work already, as the broadcast was quite successful. (QSA5, R8, T9, from yacht two miles off-shore.)

3BQ, our "old man" of radio, gave a very interesting talk on his early experiences, and a short history of the development of radio communication in Australia. Starting from 1919, when the wartime prohibition on amateur transmitting licences was still in force, he outlined the early types of receivers. When licences were eventually granted, they permitted a kilowatt input to spark transmitters. Shortly afterwards valves were procurable, but had to be imported, so that the ham who burnt his bottle out had six months in which to rebuild his rig before the next shipment arrived. Additional difficulties were provided by irregularity of construction and absence of any operating data on tubes. He then went on to describe the first two-way tests with the United States, using receivers with up to five tuned RF stages, each independently tuned, and transmitters with up to six valves in parallel, and badly overloaded. During the first test in 1923 some 30 American stations were heard, but none were contacted. However, very soon after that amateur circles were stirred by the news that two-way communication had been effected, and contacts followed in more or less quick succession.

When he had finished, Max was bombarded with questions on gear and general conditions, showing plainly that the gang had appreciated his talk.

No doubt, many of you have been expecting to hear 3WI on the air. Unfortunately, thereby hangs a tale which hurts me to unfold. A few of the gang gathered together one Saturday afternoon, and made all the necessary arrangements. All went well until the power was turned on, when we were amazed to see two perfectly good milliampere meters vanish suddenly behind much smoke. The cause was traced to a defective F443 in the P.A., and the effect was pretty, but disastrous. It has now been decided to substitute a pair of 46's in push pull for this tube, and we hope to have the rig on the air on 80 mx early this month. The schedule of operations will be published in next month's notes.

We hear that 3CL, who has been off the air for the last twelve months qrl with study, has finished his exams, so that he will be free to disturb the

ether again. Welcome back, old man. During the holidays 3KN held a house party with the idea of getting his 60-footer up. 3BQ and 3WG lent him a hand, and eventually they managed to get it in position. When not working on his 5 metre rig he has been trying out tri-tet oscillator, and reports excellent results. 3FJ has been experimenting on aerials, and has found that he can get dx results which are nearly as good as those obtained from his half-wave Zepp on an aerial between 16 and 17 feet long.

During conversation recently a discussion arose on the short versus long CQ. Claiming that the short CQ failed to raise a reply, and that the most effective way to qso was by calling a long CQ, the proponents of the question found themselves in the midst of a heated argument. Personally, we have our own ideas on this matter, but would suggest that you fellows give us your opinions on this and other subjects. Your views may interest others, and by chewing the rag on such contentious subjects we can always better our procedure. Let us have your ideas, fellows, and we will publish them in this column.

If you have any suggestions as to how this column should be run, please let us know. It is for your use, and we want you to make it fulfil its purpose. By the way, read our Editor's Page this month. The key section can help most of all in the matter contained therein.

VK3 Phone Notes

Since the above section meeting for December came in the holidays, it was left out, and our next meeting will take place on the last Tuesday in January. Consequently we have not the usual meeting "doings" to report, but nevertheless the Phone Gang is far from inactive.

Firstly, phone stations are notified that until further notice the advertising of "Amateur Radio" as obtainable at McGill's must be discontinued.

There is another matter which we would like to remind some members about, and that is their unfinancial position.

Our president, Mr. G. F. Thompson, is very busy collecting data as to the best time for our Phone Section Competition to be held, from the point of view of reception conditions in New Zealand. As mentioned in last month's notes, it is proposed to bring in New Zealand dx-ers on quite a large scale for the judging in this competition—mainly, of course, to give us information on the "getting out" abilities of the competitors. Since nearly all the reports one sees from N.Z. have some remark or other with regard to local noises, above which only the stronger stations seem to arrive, it is obvious that the dx-ers could hardly be called upon to supply any data on quality.

As a result of Mr. Thompson's communications with the presidents of the clubs over in N.Z., we find that they are taking up the suggestion most enthusiastically, and will show fine co-operation.

As mentioned at our last meeting, the actual time of the competition is yet unknown, but there is no time like the present, and competitors cannot be too early in sending in their applications. These stations should communicate with me at any time, and for the present simply state their intention to compete. Further particulars, such as power to be used, etc., will be called for when required.

Of course, everyone knows that the W.I.A. A.O.P.C. class is now well under way, and our chairman, Mr. R. M. Dalton, 3UI, together with Mr. M. Howden, 3BQ, reports great enthusiasm among the students, to say nothing of the will and enthusiasm of the two aforementioned gentlemen.

To go back to an earlier remark, with regard to advertising by phone stations, we all knew that it was quite in order to advise listeners of various matters concerning the Institute, one of which could most certainly be "Amateur Radio," but when it comes to the point of mentioning where the magazine may be obtained we overstep the regulations mark. A further point which we must bring up is the advertising of lectures. This must not be done. If one station, in communication with another, wishes to "talk" at length on the complete construction operation and testing of some particular theory or piece of apparatus, O.K.; but a station is overstepping the mark if it announces that a certain person will lecture on the same subject for the same length of time and in precisely the same manner.

I think all active hams know by

now, and the rest soon will know, that 3CY is temporarily off the air. Mr. Arthur Burman, the owner and operator (not forgetting Mr. Gerald Clauscen, chief offsider) has carried on test transmissions from this station for some considerable time now, and with marked regularity upon which we must congratulate them—Arthur, the engineer, and Gerald, the announcer.

We were all very sorry to hear a few weeks back over the air that Arthur's health had reached a stage where he would have to give up his work and ham operations for about six months and go away for a complete change. Well, now that he has got away and is having the well-earned rest and looking after himself, we know he is getting better once more, and before very long we will not be at all surprised to hear him back on the air again "full of beans," as it were.

I think Gerald would like it mentioned that, as a result of these arrangements, he is now "out of a job." Is there any GOOD phone station in need of an excellent announcer? I can personally recommend one who will give his superb services for, I understand, the simple consideration of being let loose before the microphone.

I have learned from a very reliable source that the now world-famous 3TH has gone to Lakes Entrance to spend his well-earned (?) holiday. I am sure the phone gang will agree with me when I extend my sympathies to the fish (jelly and otherwise) at that resort.

To become serious once more, the N.Z. DX Radio Association president has gone to considerable trouble in communicating with us at length, and states that they will do all in their power to restrain the dx-er who sends bogus reports. If all such doubtful reports are brought along to the meetings by the members, same can be dealt with officially and, through the medium of the president of the N.Z.D.X.R.A., run to earth.

In closing, I would like to remind the phone gang that the next meeting will be held on the last Tuesday in January, namely, January 30.

We trust you have spent an enjoyable Christmas and New Year.

73's.

IVOR MORGAN, VK3DH.

NEWS FROM FEDERAL HEADQUARTERS

By G. B. Ragless, Fed. P.O.

High Power Permits.

Mention was made regarding the above in the last issue of "Amateur Radio," since which a letter has been received from Mr. J. Malone, Chief Inspector of Wireless. The department considers that the previous statement is apt to be misunderstood, and wishes to make it clear that the extension of power is only for Morse stations, and not for the use of phone transmissions.

Tenth Annual Convention.

The Federal Executive has decided that the Convention's first session will be held on the evening of January 26, and continue until all business is completed, ending on January 29. The Queensland Division has appointed Mr. L. A. Deane, VK5LD, its proxy, and other Divisions are asked to make preparations at once. An agenda prepared by this State is in the hands of all executives, and all States are requested to make additions.

In regard to the matter of Federal Headquarters for 1934, the South Australian Division has recommended that it remain in Adelaide owing to the amount of work under way.

Further particulars regarding the Convention were contained in the last issue.

Federal Finance.

Owing to non-payment of per capita fees by the majority of States the matter of certificates and other important matters have been held in abeyance for the time being. The lack of funds has severely handicapped the work of Federal Headquarters.

Fisk Trophy Results.

Well, here we are with all the news regarding the five-point relay contest, the first leg of the Fisk Trophy. The full results, showing how each State and every individual fared, is given, with the following tables:—

State.	Total Scores.	Points for Aggregate.
VK3	3951	5
VK2	3513	4
VK5	3300	3
VK7	2868	2
VK4	2473	1
VK6	2421	0

The Twelve Leading Stations.

Station.	Points.
VK7CH	1383½
VK6SA	1378½
VK5JA	1169
VK4RV	1154
VK7RC	1046½
VK2OZ	940
VK3HQ	885½
VK3RJ	873½
VK5MU	798
VK3ZC	719
VK4AW	674
VK2OF	620

Sub-Totals.

Victoria—3951.

3HQ	885½	3BQ	49½
3RJ	873½	3DT	44½
3ZC	719½	3OW	42½
3JE	365½	3GR	40
3XK	322½	3ET	30
3KO	91½	3HL	30
3GQ	78	3ML	30
3HK	66½	3NK	30
3FX	53	3NZ	30
3PS	53	3SK	13
3HG	50	3CX	3
3KL	50		

New South Wales—3513.

2OZ	940	2XV	48
2OF	620	2DZ	46
2DR	582	2DQ	36
2BP	226	2UP	31
2YL	214	2MY	30
2PE	134	2OM	30
2OU	122	2RY	30
2WO	112	2CK	29
2EL	107	2HX	28
2KJ	56	2RK	16
2IZ	54	2YI	12

South Australia—3300.

5JA	1169	5LD	249
5MU	798	5PK	127
5ML	504	5RH	27
5WP	400	5RT	26

Tasmania—2868.

7CH	1383½	7JB	265
7RC	1046½	7CD	173

Queensland—2473.

4RV	1154	4LG	43
4AW	674	4MR	40½
4JU	273½	4GG	13
4UU	109	4EW	12
4TY	62	4EL	305*
4AB	47	4DR	256*
4GK	45		

*Scores are shown, but not counted in State total. (See text.)

Western Australia—2421.

6SA	1378½	6MN	165
6FO	580	6PK	30
6RL	267½		

It will be seen that Victoria will hold the trophy for the first six months, while VK7CH just beats VK6SA for the highest individual score. The performance of VK6SA is easily the most outstanding when it is considered how far away VK6 is from the centre of activity, and shows what can be done against geographical and other handicaps.

The condition of some of the logs was very bad, and made checking exceedingly hard, but even these stations deserve credit for sending them in. As usual, a number of stations took part, but did not forward any report. Surely if it is worth taking part at all every station should send in a record of the work. It was surprising the number of stations that both underestimated and overestimated their scores, the extra half-point for a fifth State message upsetting some calculations.

We wish specially to commend the following stations for the neatness of their reports, which made the work of checking easy:—VK2OZ, VK2DR, VK2OU, VK3RJ, VK3KO, VK4RV, VK6SA, VK7CH. It is with regret that we have to mention that the reports of VK4EL and VK4DR were received after the closing date, so could not be counted in the Queensland State total. The scores are listed so that the operators will receive credit for their work, but had these reports been received earlier the Queensland score would have exceeded Tasmania's.

Several stations hinted at unfair methods and "unsporting" tactics being adopted, but no definite charges were made. It would seem that in a contest where the welfare of the State team is the chief consideration very few unsportsmanlike methods could be used. Taken all-in-all the contest seems to have been a great success and greatly enjoyed by all the competing stations. The Federal Executive wish to thank all entrants for their interest, and anticipate making the next leg of the competition even more interesting.

The next contest will probably be held about May, 1935, and Headquarters would be pleased to receive any ideas for same.

THE ASSOCIATION OF RADIO AMATEURS (N.S.W.)

ZONE 1.

Well, gang, it's such a long time since I have written notes that I don't know how to start, especially so soon after the Five-Pointer. I am still hot and bothered (hi). I had some of the rottenest luck during the contest. Went out for a spin in the car, got about 50 miles out, when "phut" went the crown wheel and pinion. That lost me four days of the contest, so gave it up.

Personally, I think 7RC will have the highest score, with either 2BP or 2OZ running a close second to bring home the bacon to VK2.

Well, the conditions on all bands up to date have been good to bad (hi). 40 is the most widely used band still. Plenty of qrn on 80 metres, so have not been up there at all, while the dx is starting to trickle through on 20 metres. Don't mention 10 mx or 5 mx, please.

Here are some of the boys heard on 40 mx:—VK's 3JE, 5MK, 4RV, 4TY, 4GK, 3HQ, 4EL, 7RC, 3ZC, 7DR, 5JA, 4AW, 7CH, 4UU, 3DT, 5RH, 5MU, 3WG, 3XK, 2XQ, 2HF, 4MR, 2AW, 2PC, and a host of others too numerous to mention. Dx worked on 40 metres:—W6GTD, UP1FF, PK3BM, OM1TB (qso'd him three times now, and asked for a card each time, but still waiting, hi), VE5G1, W1EWF, AC8RL, W6EXQ, W6EAK, W8CBF, W6TI, K6BLA, W6CXW, W6CUZ, W5PX. Heard EAR302, EAR229, G5BU, G5DS (called, but nd), KA1WE, J5CC, JK1HG. That's all!

Reg, of 4RV, complains about only getting in three nights on the test. Reg is now second op at the talkies over there. Best luck, om. 2AW is thinking about taking a xmitter back with him when he goes in about ten days' time. He is still using TNT with 7 watts to 245. 3DT's xtal is playing up. Say, OC, those cuss words would upset anything. (Hi, hi.) 3NG wasn't in the test because he couldn't get on regularly. Hard luck, OB. OM1TB is using two 852's in pp with 2000 volts at 200 mills. Oh, boy, for an 852! Was qso UHE; he had an R7 RAC signal. This boy (?) is at the Naval Depot. 2XQ is really John, of 2BE. Congrats, John, OC, on getting your own call. Still complaining about dx being scarce? 2HF is using a modulated sig. His rig is 47 CO, 47 FD, a 50 watter in final with 90 watts input. No wonder the valve companies do a roaring trade!

Haven't any dope from the Broken Hill gang this month, but heard Dud, of 2DQ, qso-ing with 4RV the other morning, so he must still be wriggling the toes. Guess we'll be able to deliver the goods next issue.

Dx heard on 20 mx isn't much (?), as I didn't stop down there long. However, I did hear OH, G, W, EAR, FM, and K. Notice old 2HL has shifted his qra. Say, Bill, are you going to become one of those, too?

JIM (2PE), A.R.A. Zone Officer.

ZONE 2.

Temporarily the boys in Zone 2 are on the quiet side, VK2XQ and 2EG being the most consistent; they're always on (hi).

14 mc has been the order of the day for us. 2XQ contacts G regularly between 1200 and 1400 GCT, and Europeans come through fairly regularly. 2EG qso VQ4CRH, OK2OP, PK4AZ, PK4BO, HC2JM, G6HP and J5C1, and clicked his WAC after two months on the air. Fb, sez I. 2XQ worked ON, PA, OK, OH, G, HAF, PK, and landed a VS6 on 7 mc. Fb, John, OT.

Heard a few locals down 14 mc, all States taking advantage. VK3's seem to have trouble in clicking the dx. So do ZL's, but the other States land it O.K. Guess you boys will have to look to your receivers (hi). Conditions are very uncertain there, though, and dx comes and vamooses at a minute's notice.

Heard 2WU cqdx on 20. Lew has been after Africa for four years. Heard ZS5X call cqdx just as you signed, OM. Too bad, OT. VK5MU has a sked with ZS5X and SU1EC.

14 mc:—W sigs come through QSA5 at 10-12 p.m. S.M.T.; all districts been heard here, but none worked. W6AMG say they don't hear any VK's there yet. 2HC worked YI and tried his fone. Ray is on now and then QYL (hi). 3.5 mc is NG, and 7mc provides only fair dx, as conditions vary.

VK2 is coming in unusually strong at night, 2BK, 2JU, 2NR, 2NS, 2ZH always R max (guess you overload the 245 2BK, OM), 2LJ, 2XP, 2FY, 4EL are a good lunch hour quartette.

The VK4's are very consistent; 4RM, 4EW, 4NS, 4RV, 4JU, and 4US heard often. VK2KR has been qrl away from home, and won't be about much till Xmas. 2KN qrl study in VIS. 2LM reports active. 2HV trying to get his xtal going; makes sked with me often, but ND as yet. How come, OM? 2JF heard on again for the first time for years; pde T.P.T.G., nice signal, and has a sec op. The Newcastle gang have been romping in of late; usually skip here. 2EG has had some fine qso's with 2OF, 2WU and YL. 2YO and 2KZ, the Kurri boys; 2ZW and 2NL often heard QSA5. Worked W3BBB the other night. He says he's using a couple of 852's in push pull with 1000 watts. Oh, boy! Oh, boy! (Hi.) The rock-crusher dx has markedly disappeared, though old KA1HR seems to have lost his T9 sig. Old-timer 3ES heard here lately, working A.C., also 3HL, 3JY, 3ML, 3ZC. Say, John, how is the xtal rig? 6FO worked on 20 metres; Jim, of 6SA, 6FL and 6GF all heard on 7000 k.c. Jim put over a mean sig all right in the tests, also a mean total. 7RC is the most consistent Tassie. 7CH now and then is heard, while 7CW and 7JB have also been noted. The Byrd Expedition to the Antarctic is on 36 mx, and listens for hams on 7 mc. The call is KTJY. ZL4FT landed him. 2EG will be changing his qra after Xmas to parts where a good dentist is needed and qrm isn't.

Guess the tube is hot now, so will say 73.

IVAN (2EG), A.R.A. Zone Officer.

ZONE 3.

During November conditions have been punk on all bands on account of QRN. 20 metres conditions were FB for local QSO, with some of the VK2 and VK4 phone stations coming in at R, Max.

VK2YK leaves for Newcastle, where he will spend his Xmas holidays, on the 15th December. Roy reports that he has a weekly Sked with YH1RV, and he has discovered that YH1RV was an old friend that Roy has not seen for over twelve years, when they both received their tickets together. YH1RV is on a copra plantation in the New Hebrides. VK2ZM is now on 40 and 80, putting out good phone with his M.O.P.A. Jim will be putting up two 60 feet sticks for his Zepp as a Xmas present. VK3YN also on 40 mx and 80 mx, using phone with an R.A.C. carrier. VK2GM again on the air on 80 mx heard testing with loop mod., working 2ZM and 2YN. 2GK will be changing his QRA to Lismore very soon. VK2OU reports conditions NG on 20 mx, although G's have been answering his CQ's. Sid can't hear them. (Hi.) Sid wants a 1500 volt trani and not a 1.5 volt, as mentioned in last month's notes. VK2XO is now visiting the North Coast gang while on holidays. 2XO wants week-end skeds for 19 mx. VK2GH is now on 40 mx, chasing the DX with a R.A.C. QRO rig.

Crieff (VK2XO), A.R.A. Zone Officer.

ZONE 4.

'Twas with very mixed feelings that we learnt the other day of the news from Singleton. Alex Mather (VK2JZ) hath taken unto himself a wife, espoused QRM, or gone and got married, according to the way we look at it. We had all heard so many rumours in the past of a similar nature that when we were confronted with the actual fact we were inclined to place the blame on Dame Rumour once again. However, the Ham world will join with me in wishing our old friend all the best. Ham radio loses one of its most enthusiastic supporters, or perhaps maybe the loss will only be temporary.

The Newcastle Radio Club has taken on a new lease of life. During the last month it has passed through the "valley of the shadow;" but has come out a more vigorous body than before. Under the new regime general meetings are held only once per month and club nights every Tuesday. The committee have arranged a series of entertainments covering a period of some weeks, which should prove a very excellent inducement to those lagging members in the past to patronise their club.

The gang have been very active of late. 2OF has been working Yanks, KA, K6, VP, J and others in fine style on his new rig, a cc job from his new QRA at 56 Broadmeadow rd., Broadmeadow. 2MT is using M.O.P.A., and has a new stick up to 40 ft. 2CS occasionally pounds the brass for dx and works Yanks at any time he wants to. 2KB experiences much

power QRM, and is contemplating a single signal super. 2FN is still under the RI's ban; but occasionally takes his portable 56 mc rig out. 2ZW works new countries in Europe on 20 mx.

2OC in Wyong is preparing for big things on 20 mx, and is rebuilding. 2CK pedals a bicycle to obtain power for his rig, which is cc, but not in the ordinary way. He is very good at pedalling and pounding at the same time.
—Stan Grimmett (2ZW), A.R.A. Zone Officer.

ZONE 6.

Conditions on 80 mx for the past month have been terrible, QRN for the most part holding sway, yet there are a few of the chaps still trying to hold the fort. Among them are 2HU, 2WH, 2WA, 2BP and 2SL, and, of course, 2QA; but for the most part the battle has been unequal, QRN and QSB being long victors.

On 40 mx conditions are a little better, but QRN still makes its presence felt, due, no doubt, to the unsettled weather conditions which prevail over the Commonwealth. The DX which the other VK2's are working cannot be heard at all in this centre, while the VK2 sigs come in here right till midnight. Under more normal conditions these sigs fade out about sundown. The most consistent stations seem to be 2XQ and 2EG, with their 50 cycle I.C.W. Both these stations use cc, but the filter seems to be missing from the final stage. They live within half a mile of each other, and seem to find the DX O.K. at Quirindi.

On the week ends one hears some FB fone, both local and Interstate. The quality of most Ham fone has improved greatly during the last year or so, it being very rare to hear a frequency modulated self-excited outfit. The two fone stations that come in here best on the 40 mx band are 2NS and 2HC. Conditions on 20 mx seem fair. One hears DX from 10 p.m. onwards, also an occasional Yank fone station, about 2.30 p.m. QRN is practically absent from this band. The writer received a surprise while listening on this band one night at about 8 p.m., the beginning of December. All the VK2 stations were coming through FB, and the following were logged in about ten minutes: —VK's, 2NZ and 2HW R9 on fone and FB, and the following on cw:—2XU about RMax, it being impossible to heterodyne his sigs. I understand he is using 150 watts in a T.P.T.G. rig. 2JG had an FB T9 R9 rig. 2PS and 5XK, R5, and all the following at R4, 2OF, 2XQ, 4RV, 3MR, ZL1CA, PK1CX and SU1EC. All sigs were logged at the one period and all QSA5. These conditions only lasted for about 30 minutes, then faded out. I don't know if this is usual; but is the only time it has been noticed here. A watch has also been kept on 10 metres, but so far no sigs have been heard. Now for the usual grouch. This month it is directed against the chaps who "just couldn't say good-bye." There are some who will persist in sending an unnecessary amount of "73, cul, cheerio, and 73's, cusm, good-bye, well, cheerio, a merry Xmas, 73 cheerio," and then some. It might be all right if you are saying good-night to the Y.L.; but on the air it causes a lot of useless QRM. Nothing is more annoying than to be QRM by a station who takes five minutes to sign off. Surely it is sufficient to just send a sig 73 or GB, then QRT, and thus give everyone a fair chance.
—GB, Jack (VK2QA).

ZONE 8.

After a little recuperation at the seaside returned, only to find QRN worse than previously; therefore, very little activity. After a good many years Albury has brought forward another Ham to the ranks in H. Dixon. He was successful at a recent A.O.P.C. exam., and is now waiting for his call sign. VK2DN now back on the air with 3-stage xtal set on 3602k.c., with doubler to 7204k.c. Reports QRN fierce on both bands and Interstate sigs very weak. He has under construction an electron coupled Trig. Meter. Jack says the 224A makes an FB doubler or buffer with 300 v on plate, giving ample excitation for a 210, but good grid chokes are necessary. VK2VF, are those exams. over yet, Reg? Let's know what is doing. VK2SG, accompanied by myself, visited Wyong and had a very pleasant day, spent at the shacks of 2TX, 2OC and 2CK. Possibly we will hear 2SG on CC shortly; what do you think, OM? Owen hopes so (Hi).

—Noel (2OJ), A.R.A. Zone Officer.

NORTH SHORE ZONE.

Conditions on 40 have been pretty punk lately. Qrn has opened fire, and evening dx contacts are becoming very difficult. W6FKC (well-known East Coast ham) says that VK's and ZL's have been hard to qso during the last month (time of writing, 7/12/33). Let's hope that things improve before long. 2AH is still getting out f b on 20 mx. He seems to pull dx out of nothing. He has WBE, and has had WAC three times during the last month or so, and would have WAC in three hours if the 6th continent (which he heard) had answered his call! ! Alan has put up a new stick, about 50 ft. XUI, YI, OK, VS3, RA4, ZT and OA have been worked on 20 and 40 metres. Bruce, of 2BA, has found out that superhets work better with a little more voltage on the plate (Hi). His super is working fb now, as he has increased the plate voltage from 90 to 200. 2BA is still working dx on 20 mx, but finds it hard to get new countries. Pity we can't make up some more, as Bruce has worked most of the present ones. 2DA has been working his share of dx. Keep it up, Harry. Dud, of 2DU, surprised the local lads by working HC8 and ZS8 at midday on 20 mx. Fb om. Dud is famous for his good qual 40 fone. 2DY doesn't seem to be active lately. Nothing from Bill, of 2GU, this time. The penalty of living near the water as the hot weather approaches. 2HF is a wireless patrol man. He has left 6 ft. long ago, and makes me look like a pippin. (You're telling me.—B.P. Sec.) He will be qrt for abt a month, as he is working on his hefty station. Plenty of 50 watters lying about. (Hi.) 2HL had a visit from 2HZ and 2AH. He has long 5 mx qso's, but finds it difficult to contact on 5 mx across the Harbour. Roy, of 2HO, is preparing for 5 mx and other bands, and has 2nd op learning the code. Let's hear more of you, Roy. Bill, of 2HZ, was up from Wollongong one week-end, and with 2AH visited 2HL and 2BA. Roy, of 2HY. finds 20 mx a bit dead this month. However, he's worked a couple of SU's half-a-dozen OK's on 20 mx, and V8AB at about 12.30 a.m. on 40. 2HG has been silent for six months, but expected to get gg again about Xmas time. 2JV gets in my path occasionally when he meanders around Sydney, and we chew the rag. Haven't heard him on the air for some time. Too much chess, I suppose (hi). He has an AC2 rx in his shack. The lull before the storm at 2JY. Something doing there, but so far no sigs emitted. 2KA has some very good Telefunken fone on 40 mx, using 4 stage xtal with 210 in pp in the pa. Paul has put some good fone over to W. He is thinking of building lazyman 2DR's cq machine (hi). 2KM reported by radio on Sunday afternoon, 3rd Dec., when 40 mx went berserk and locals normally in skp were all R max. Tom has just finished building a new mopa with 45 and 210. He uses Heising mod with 250, and a Reiss mike. His qra is not too good, and he is troubled with plenty of manmade qrn. Too bad. Len, of 2LD, is still busy playing boats in the Navy. 2LZ has finished his rebuilding, and has got his linear amps perking o.k. at last. Everything is shielded now, except the p.a. Con has been active on 250 mx lately, but has found time for a little dx. He showed 2FQ, 2FZ, 2AH and their 2nd ops how to blow meters up when his 20 mx rig developed a short ckt. Norm, of 2NB, has staged a comeback after about two years, with qro using 4 stage xtal. Opening entries in his log include F8 and W on 40 mx. 2ND is down on 40 mx again, after a successful season on 80. Norm has also taken out the call VK4ND, as he intends visiting there shortly. The whole amateur fraternity are anxiously awaiting arrival of 2ND's new Comet Pro, coming direct from U.S.A. 2NG Neil has a Heising modulated mopa on 40 mx, and has got out to ZL at R7 with his fone, using a Reiss mike. W and K6 are cold meat for him on 40. Why, oh, why, should Neil have been allotted the task of debating against 40 mx fone at the last A.R.A. meeting. It was a crying shame (hi). 2OT is due back this month from his last cruise in the Navy. 2UG has given radio the bird in favour of his aviary. The Doc has a splendid collection of birds. 2UP (the "no meters" expert) is using 3 stage xtal; but, say, Jim, om, why-fore the AC note emitted therefrom? Jim also uses a matched impedance skywire. Ron, of 2VG, has worked plenty of G's in the late afternoons on 40 mx, but he missed the bus when PA and YI called him. An old ham is making a good comeback down Manly way with a 3 stage xtal.

Haven't heard what call he has landed yet. Andy, of 2VR, is coming on again with 46's in pp in SE rig, and Andy paid full list price for those 46's!!! Hard cheese, om.

Whoopee! Ian, of 2XC, has finished his Uni exams, and is back again in full blast on 40. Now bring out your dx!! 2NP is a new ham out Gladesville way, and is using 5 watts to a B405. Charlie has been on all bands except 5 mx. He intends gg qro shortly. 2YC is sneaking up a lil stick on top of his flats at McMahon's Point, disguising it as a toothpick so that the manager of the flats won't object! Jim is keen on the new Tritet ckt for his 10 mx rig. 2ZG has been off the air for a bit. What's up, Jim? 2ZZ, out at Asquith, is still very quiet. The rural life must have got him down (hi). AG, BF, DE, DJ, EC, FM, GA, GJ, GO, GW, AI, IJ, JB, JP, KC, KX, LP, LQ, OE, YH all quiet. Come on, chaps, use up your 30 bob. Give me a shout, phone call, letter, telegram, or anything, and let me know what you're doing.

The 1st Div sigs have a new mag called "Vic Eddy," which has the doings of the soldier hams therein. Very good little book. ZL1CD has announced that he will be on 10 mx on fone every Sunday between 10 a.m. and 2 p.m. Sydney time. He will listen for calls on 20, 40 and 80 mx. 2QR has put a 250 in p.a. instead of 210, and another 250 will soon be keeping it company. Bob says that the 250 shuts him off the air when it considers that he's said enough. Sometimes it miscalculates and stops osc too early, leaving Bob high and dry with his AR, K, still in hand. The 250 has improved the rf and the bcl complaints. Bob got R7, T9 from VE2BE. He's keen on getting a couple of 50 watts for his p.a. Had a 3 hour phone qso with Laurie, of 2SL, recently. Laurie is always keen for a good chew. He has very good fone. Bert, of 2ZI, is now at Lane Cove with a mopa. Lapping out of my district, 2FZ, of Temora, is hamfesting in Sydney, and has been visiting some of the local boys. I recently took Alan, of 2AH, on a mobike ride round a few of the shacks near Epping. 2NR had just crawled home from a wet afternoon playing cricket, and was pleased to show us his big perk. Frank, of 2ER, showed us some jolly interesting points about xmitter adjustment, and a snappy 2nd detector idea to wipe out qrn. It looked the very beans on paper. Will try it out some time. 2QR was "at home," too, when we called, and made us very comfortable internally. 2YA was found seated amongst his gear, and debating what sort of rig he would try. Just like that photo on the cover of November QST, only Rex didn't look so technical (hi). 2QR, 2AH, a BCL and self recently paid a visit to VIS station at Pennant Hills, and had a very fb plus time there amongst the rf. 2DR has been plugging along on 40 and 80, cursing the 40 mx qrn, and hoping for better times. 80 mx has been better than 40 mx, as I worked a ZL on fone who was R4 when contact Interstate or overseas was impossible on 40 owing to qrn.

One by one they are departing from the realms of 80. Only a few diehards remain. 2RJ, 2HU, 2SL, 2BP, 2DR and a couple of others make up the entire VK2 rearguard. Too bad!

DON (2DR).

CUMBERLAND DISTRICT.

2BK had his shack invaded by a B.C.L. brother-in-law, who, of course, made a complete mess of the transmitting tuning. He swears he will install barbed wire round the xmitter to ward off the ravages of fiddling relatives. 2BK has done some good dx, although he is quite a new ham. His bag includes KA7, KA9, OM1, AC2, XU, K6, W and VE. F b, Jack, o m. 2PH has had a severe bout of 'flu, and has been feeling vy qrp. We hope he is better by the time this is in print, and is able to sit up and take a little liquid nourishment. 2FY has a portable xmitter which he takes to the bush with him. He uses a Ford coil for power supply. I tried it once and promptly blew the blocking condenser.

73.

REX. (2YA).

HARMONICS.

Received by VK3HK, the QSL of W7CB1 is printed in blue on 3-ply veneer wood, and is thin enough to use a typewriter to fill in the requisite dope. W7CB1 is in the timber business, hence the advert.! Looks as though wallpaper is giving way to the more modern panelling of shacks.—VK3PS.

VK4 (QUEENSLAND DIVISION)

The monthly meeting was held at headquarters, Heindorff House, Queen street, Brisbane, on 1st December, before a good attendance of transmitting and student members.

Jack Files, 4JF, was elected to the council owing to the resignation of 4AH.

A library is to be formed comprising prominent American and Australian monthly journals, with an entrance fee of 2/6 and a charge of 3d. per book per week for city members. Country members will obtain this service free of charge. Mr. Wishart, 4WT, and Mr. Kemp are acting as librarians to check and forward all copies. In addition country members are to be supplied quarterly with a resume of the general activities of this division.

The official station, 4WI, has now ceased operations on 200 MX fone, and is now being altered for 80 MX fone work. A definite schedule will be run on 80 MX telephony on Sunday evenings, commencing early in February, for the promulgation of Div. notes and doings. A miles per watt contest, using portable equipment, is to be run on each last Sunday of January, February and March, between the hours of 1000 es 1600. The last Sunday in January and March will be used for CW, the Sunday in February being reserved for fone. Any band may be used and location must be portable; all logs showing stations worked and total power used (fil. es plate wattage) to be forwarded to the secretary not later than the 9th April. A cup is to be donated to the winner of this contest.

Correspondence for the Institute should be addressed to the secretary, Box 1524V, G.P.O., Brisbane.

Mount Nebo Week-end Camp.

Present.—4TS, 4WT, 4HW, 4RB and six student members.

Conveyance provided by 4TS, 4RB and Sammy Hutchison. 4TS, looking the least reckless of the trio, was chosen by 4WT to be entrusted with the transportation of his august self and his booful three-toob nickel-plated all-wave portable receiver. Narrow mountain roads never do appeal to Bill, but when the summit was reached and the froth blown off a couple his eyes resumed their normal size.

Jolly's Lookout was chosen by the boys as the headquarters base of operations, and the shelter shed was duly taken possession of to be made horribly untidy with a maze of aerial wires, batteries and other sundry junk. The gear included three receivers (which actually worked) and two transmitters. 4RB's mitter was an 80-metre xtal rig, but owing to heavy QRN on that band it could not be used. The 40-metre rig (4AW fabrication) was made to perk, but only after 4RB had exhausted his repertoire of bad language on the dingus. A few contacts were made with local and country lads, but no DX.

Gordon Shearer, 4GA (kid-whacker of the Mt. Nebo State school), paid several calls on the boys during the Saturday and Sunday, and assisted materially—to run the canteen dry!

"Smiler" Lynch (as usual) took first prize in being the most prolific source of "nautical" yarns.

4TS and "Wee Georgie" Allingham ably performed the duties of cookies, and f.b. cookies they were, too—rissoles, bacon and eggs and coffee for brekker—Whoopee!

Several types of commercial auto "B" eliminators were tried out on the transmitters and receivers, and all proved moderately satisfactory.

Conditions on the various bands during the month have not been of the best, although 40 MX still holds first place as far as DX is concerned; 20 MX has been quiet, nothing much being heard here; 80 MX at present is very bad, with QRN so consequently ND.

Congratulations to VK4TS, Ted Shorten, on his new position as secretary of the W.I.A., Qld. Div. Hpe you still find time for a QSO, Ted, OB. 4UK Vic Herschell, of Toowoomba, is now on xtal using 247 CO. 246D is TBO 4/10 PA. Vic is receiving FB reports, es is now looking forward to Qso's with the boys in VIB. 4GU, who recently passed his A.O.P.C., is now on the air with a three-stage xtal outfit using 247, 246 es pair 245's in final. 4RC, often heard with a gud DC note at R7, is using TNT with an input of 25 watts to a 246. Now that he has been relieved of his duties as sec., 4WT Bill Wishart, of Graceville, intends rebuilding his xtal rig. Understand that when completed he will

have one of the finest outfits in Brisbane. 4OB heard recently testing out fone with fairly clear speech, but modulation percentage rather low; believe Otto is using Hartley with 350 volts on a 245 grid mod. 4RJ is at present concentrating on 200 MX fone work, and has been receiving reports from ZL es VK6 of his night transmissions; also received a report from Rockhampton of his daytime transmission. Dell has vy fb equipment, and sets fine example of station layout. 4NG at present on location at Tambourine using the portable gear to great advantage. 4LJ had intentions of an early return to the air, but is at present QRL Main Roads, Townsville. 4MM, having trouble with power supply, has blown tranny, filters es rectifiers. How cum, Matt, ob? 4DR Qrl working on public address amplifiers. 4RM, of Mackay, heard recently working. 4UK, of Toowoomba, is coming in at R6 gud dc. 4JB heard calling the Toowoomba gang on fone the other nite. Ock says condex n s g lately; think you are spending too much time preparing the fishing gear for the Xmas holidays. Sa don't forget the Camp Pie. 4VJ has been trying out 2A7 tubes in a short wave super het., and says they're the berries. 4GS finds it impossible to work on short wave owing to heavy DC motor Qrm; he is now transferring his activities to 200 mx fone work. 4JN, of Mitchelton, still on 200 mx fone, es judging by the reports received by him is getting out fb. 4GK, of Wynnum, heard at R7 in Toowoomba recently on fone using grid modulation, quality es clarity being excellent, also the percentage of modulation being fairly high. "Mac" states that condx on 20 mx at his Qra has been very poor lately, practically no dx being heard or worked for some time. Several of the boys here, including 4AW, 4WT, 4RJ, and 4RY, will be taking their portable gear away with them at Xmas time, and all look forward to some pleasant Qso's.

In conclusion the writer would like to congratulate the Victorian Div. and the Editors of this magazine on their enterprise, and trust that "Amateur Radio" will have 100 per cent. support by all VK hams, and that it will have a long reign of prosperity.

Well, gang, all for now; and may 1934 bring you all happiness es prosperity. Cheerio.—73RY.

VK5 (SOUTH AUST.)

The last general meeting of the W.I.A. (South Australian Division) was held on November 29 at the clubrooms, where a fine lecture was given by Mr. W. Honnor, B.Sc., on "Modern Sets and Their Associated Circuits." The lecture proved very interesting, and was illustrated by circuit diagrams, which made it easy to follow.

A cricket match was arranged for December 17, but unfortunately had to be cancelled. It will probably be held late in January.

The Transmitters' Section held their meeting on December 13. The main item was an auction sale of junk parts. These sales are quite an important feature now, and take place about every three months. Mr. Launse Deane acted as auctioneer, and did a fine job when the interjections by prospective buyers are kept in mind. Hi!

Owing to rotten conditions the activity in VK5 has not been great. Dx seems to have been absent for about three weeks except for occasional Yanks, etc. In view of this I have not much dope on the doings of local hams. 5MD seems to be concentrating on the 200 metre band. His quality on that band is excellent. Glad to know that you are entertaining the bel's with something besides bumps, Doc. 5GO, George Gurr, of Parafield Aerodrome, puts out a nice sig on 7 mc. Dx includes ZE, W, J, etc. 5RO was a very active bidder at the junk sale. He bought a bank of filter condensers. Sa, o m, you will have to get a rectifier first! Bob has an f b xtal. Three notes. AC at the bottom of the band sometimes, CC on its true wave, and RAC on the top of the band. It is handy in case of qrm on one of them. He can use either of the other two then. Hi! 5LP, of South Payneham, is rebuilding completely. The proposed rig is a four-stage xtal, using an E406 p a. Receiver is to be a five-tube S.S. superhet. 5RT is building a swell looking rig, according to reports. Sa, Bob, how about saving a little room for a condenser for filtering the p a supply? 5LD has a p p rig on 20 metres, and puts out one of the best sigs on that band. 5MK still finds dx, and has no trouble in qso-ing Yanks. This ham uses a 45, which he treats kindly with 650 volts. 5JH does very well on 20,

also works European dx by the bagful. He is using a Hartley with an E408N tube, and puts out two bonza sigs on that band. 5MF is busy building a seven-tube S.S. superhet. This set should be the goods. Al's other activities seem to be sun-bathing and entertaining yl's, to say nothing of "mystery (?) hikes." 5MU is another ham who has caught the rebuilding craze. Malcolm is the proud owner of an 866 rectifier. 5RX reports dx a bit slow lately. He has been qso with a V8, but owing to the B.C.L. qrm has not been on much. 5MY has xtal going again. He is using an xtal oscillator with harmonic output, and reports excellent results. 5YK built a m op a for 20, using a pair of 45 oscillators in pp, exciting a pair of 210's likewise, but owing to a shortage of dx has not had proper chance to try it. 5TX, the qrp king, has a three-stage xtal rig with two watts input to the p a. Anyway, Jim, the sig is about the best T9 note I have heard. 5MB is just about to take the final plunge, hi! Congrats, Merv, o m. Hope all your troubles are little ones! 5LB is using a three-stage xtal rig with a 45 p a. His input is only 15 watts, but he has been working plenty of dx, including W, KA, OM and PK, and has been reported R8 in J. F b, o m. 5JA has not been heard since the contest. Anyway, o m, you did a f b job. Guess the contacts on the bug want cooling. 5JO has been fairly active on 20 lately. He has just built himself a new shack, and has a nice looking rig with a TBO410 in the p a. 5ML has not been on much lately, due to punk conditions. He has been getting plenty of dx cards from Europe lately. 5LG has forsaken the p p t p t g for a MOPA on 40 using a 203 and a TBO410 with 500 volts on the plate. Has been getting T9 reports —sometimes! The old p p rig is to be converted to 20 metres shortly. Understand, Leith, you have a new second op in the place of the yl sec op who used to punch the brass.

Here at 5FM I have been mainly experimenting with various types of antennae. As far as I can say, the single-wire matched impedance feed seems to be the best for all-round use.

The last A.O.P.C. exam seems to have been a great success. No fewer than 12 got through. Congrats, o ms. Hope to hear you all on the job soon.

In conclusion, I would like to add that these notes are the last I shall be writing for some time. 5ML, Geoff Coombe, has undertaken to do the job for the next three months, so, please, you chaps, give him the low down on your outfits and doings. He is not a crystal gazer. Hi!

May the New Year bring you more and more dx.

73's
5FM.

Did any of the gang ever get their boomerangs from XVK8BA? Hi! hi!

VK6 (WEST AUSTRALIA)

President's Message.

With the arrival of 1934, so will our f b Mag bring you the best wishes of the New Year, and also may your next qso be a South American hi! hi!

As in the past years of amateur radio in this State, treat this year again as just a grand hobby packed with experiments, science and patience. Above all, do not forget that important organisation, the Wireless Institute of Australia, towards which every ham in VK6 should do his part to make a home for the inmates of amateur radio.

Wishing you a Bright and Prosperous New Year, I am,

Yours hamfully,
W. E. COXON (6AG).

NOTES.

Over the last few weeks very little has been done in the way of dx, not because it was not there, but, as you know, because even hams have a bad habit of wandering on these hot, sultry evenings, and when they return, instead of seeing a single-ended rig, as was there before, they find a push pull parallel arrangement. Of course, this is not intended to apply to anybody in this State!

A few of the old-timers were heard on Sunday morning early some time ago trying to catch the elusive Spaniard, but nobody was heard to work one. Among the dx worked hr lately were G, OH, YI, PA, U, F, CR, and sum Yanks.

6AG was qrl wid talkies, but as that job is finished for awhile we want to hear your sigs agn. 6CP was heard putting out some fone, and most of the time it was fairly f b stuff. Keep at it, o m. 6SA still pining to hear the results of that contest. 6JK—oh! where is my wandering boy tonite? Sa o m, the air has still plenty of room fer ur sig. Jack has gone qrp wid a pair of 245's in push pull. 6LJ

still on the missing list. 6RL not as consistent "as he used to was"; believed to be rebuilding again. 6CX will be bursting forth with a new xtal rig. Sum job, too; will stand about five feet high, and is fully self-contained. 6GM qrl at present; likewise 6MU, 6GW, and 6PK with examination. 6LK has his nose into the textbook; says he will have a suit adorned with brass buttons yet. 6KR still manages a little dx.

The class for the members of the W.I.A. wishing to secure their A.O.P.C. is well under way, and a number of new hams for VK6 will soon be issued. Best of luck, gang.

NORTH SUBURBAN RADIO CLUB (VK3FY)

The meetings of the above club to be held during January will take place on the 8th and 22nd inst. at the clubrooms, 354 Rathdown street, North Carlton, to which all interested are invited.

Members of the club recently spent a week-end at Boronia with a portable mitter, using 45's in a tnt. Batteries were used throughout for the receiver and transmitter, and proved very satisfactory.

Numerous qso's were established, and on the whole a very enjoyable week-end was spent. The only regrettable incident occurred at 1 o'clock each morning, when the president began to dream about dx. And, believe me, he could talk. 'Twas r max.

On Saturday night, the 20th inst., 3FY will conduct an all-night broadcast on 200 metre band, and will continue until 10 a.m. on Sunday, the 21st inst. A lookout will be kept for other hams on the air, and we will be very pleased to qso.

Slow Morse code is still being continued on 80 metres from 8.15 till 9 p.m. on Wednesday evenings, and judging by the reports received it is becoming very popular with intending VK3's.

3AS and the Secretary are spending the Christmas vacation in Vis, and hope to meet a number of the VK2 gang during their stay in the 'Arbor City.

By the time this copy goes to press one of our members, Mr. Howard Harrison, will have taken the solemn vows of matrimony, and we all join in wishing him and his wife the very best of good luck. And may he still attend our meetings regularly. (Take note, XYL!) At the last meeting members presented Mr. Harrison with a handsome crystal bowl.

For further particulars concerning this "live wire" club write to the secretary, Wm. L. Wonder, 12 Smith street, Thornbury, N.17.

VICTORIAN COUNTRY NOTES

From Northern VK3.

By 3WE.

3LH got quickly to work after changing qra from Merbein to Birchip —over 50 qso's for last month, but not satisfied; says he left the north "ostensibly" to dodge qrm, and struck it worse in Birchip. (Local engineer, 3CH, please note.) 3CH still aspiring to "B" class, but at present qrl locating "blowflies" in his Navy type A.C. genny, and building a freq meter de luxe. 3WE going again after being burnt out a few months ago; qrp 2-stage xtal from local D.C. on 3500, but packs a hefty wallop. Save the pieces when that 500 genny starts. 3CE is at last going xtal—got the pebble from Max t'other day, and proposes to try out the new harmonic doubling rig and give the Hartley a rest. 3PY has rebuilt his outfit. What! Again? Now uses the new harmonic circuit; says he can get good harmonics down to 5 c. What about ½ cm.? 3KE has greatly improved his perl lately; recently he put a coupla yl's on the mike. Says they're his sisters! 3ZL still ragchewing R. Max on 80. How many kw, Eric? Usually has a long string of dx to report, w's, g's and whathaveyou? 3KR has temporarily ceased to worry bcl's on 200. Now has a backwave on 80. Also has a penchant for qso yl's on Sundays. Talking of yl announcers, 3WE put over a good one on 80. Got a yl to call cq. Did they answer? The resulting qrm was awful. The night club at 3FY strained all valves to get back. And the bcl reports! Bill has patented the idea. 3LH is changing from television to "smellevision" to locate the hum in 3CH's carrier. 3OR been qrl with floods lately, and qro banjo solos. Believe he's a connoisseur of talkie reproduction. Ask Ken.? 3JV—"Anyone knowing the whereabouts——." But perhaps Arthur, like many others, has forsaken 80 for

higher freqs during the qrn period. 3CD heard fairly often with a good, hefty pdc note, fb, Johnnie. Busy rebuilding to 3-stage qro rig. 3AN not heard much of late. 3KI still heard with r max cw sig. Vy fb, John, but why the backwave? Hi!

The Northern gang held another little convention in Birchip lately, when 3KR and 3CE, complete with yl's and in need of a few spare parts, paid a surprise visit, but found everything screwed down. Duly qso'd 3OR de 3WE. Photo elsewhere shows the hard dials of the gang.

3KR has made a coupla trips to 3CE lately—about 80 miles—we refuse to disclose her Christian name.

Just about the time these notes are published (?) the Mallee gang expect a visit from our genial State President, 3TH, who is making a special trip up to see the "nuisance" (ask 3LH his identity) and to learn how to build a really fb 200 mx xmitter. We hope to surprise him in more ways than one.

Conditions generally in the north have been bad on all freqs during the past few weeks. 3500, except for short and irregular periods, altogether impossible for qrn. 7000 not so much qrn, but high speed fading very bad. Nothing at all heard on 14,000.

Following up a suggestion made to the Editor that VK3 be zoned for notes, the Birchip gang will stand by for rag chew any time. Call 3CH on 200; 3LH and 3WE on 80 or 40 after 2230 any nite; 3LH on 40 any time after 1930. Or scratch a few lines to 3WE.

VICTORIAN QSL BUREAU

Cards for the following are on hand at the Victorian Qsl Bureau, 23 Landale street, Box Hill, Vic., and will be forwarded on receipt of stamped envelope:—3AB, AH, BD, BX, CR, CY, EM, ES, ET, FC, FM, FY, FW, GX, GU, JM, JN, JW, JX, JY, KA, KQ, LM, LP, LS, LY, MH, MM, NC, NG, NM, NR, OM, OT, OY, OZ, PA, PR, QZ, RB, RN, RT, RW, TP, UJ, WO, XK, XX, YL, YR, YW, ZM, ZO, ZL, ZX, ZY, Graf.

A card worth a place on any wall is that of VS3AB. The card, which is of a highly decorative nature, is emblazoned with the coat-of-arms of the Royal owner.

R. E. Jones, VK3RJ, Qsl Manager.

Q.R.P. CLUB NOTES DECEMBER, 1933

Many moons have passed since our last club notes appeared, but henceforth we hope to be on the job regularly. This is an excellent little magazine, and it is up to you clubites to do your bit by taking a copy each month—if only to see what the rest of the gang are doing.

Allow me to introduce the new VK secretary and organiser, Jack Moyle, of VK2EZ. Now that the uproar and barrage of dead marines have died down let me explain that the op here, imbued with that restlessness that made Bill Shakespeare (or was it Ned Kelly?) say, "In the spring a young ham's fancy lightly turns to thoughts of DX," invested in a few "B" batts, and gave his half-starved 245 the thrill of its young life. At 240 volts the 100 mill meter went hard over—and, boy, that meter cost the best part of three greenbacks, so she **shouldn't** tell lies. Anyway, that put finis on 3NQ as far as QRP club went, and now 2EZ is the big shot, the man to whom you will send your membership applications and your notes each month. Keep him well supplied, boys; he will be writing these notes in future, and wants some gossip to put in them. ZL2FE has also increased his power to 12 watts, so a new secretary and headquarters station will have to be appointed in Maoriland. One hears a rumour that 2JJ and 3CL have been using QRO. The sec. would like to hear from these members. Now for some scandal:—

2EZ wonders who's pinched all the DX on 14 MC. Everybody seems to be getting a share but Jack, who can only hear a few R3 ZL's. 2GT chasing 14 MC DX. Heard YH2RV calling him, but unable to contact owing to QSC. 2KZ, using 5 watts, raised two W6's on 3.5 MC, and received QSA5 report. Good work, Mac. Works Yanks by the dozen on 7 MC. 2YA now at Auburn, with AC laid on, and has gone QRO with pair TB 04/10's. Ask Rex how he enjoyed himself at Wyong Field Day on Nov. 5th. 2YI bit of a will-o'-the-wisp; changes his QRA every couple of months. 3CD now has 3HL genny, and is looking for an engine to work it; soon be QRO then. 3EP complains of QRN on 3.5 MC, but manages to hook a ZL now and again. Hartley refused to go well on 3.5 MC, so he built a

TPTG, which perks fb on 3.5 MC, but punk on 7MC. So what's the use? 3JV gets R7/8 reports from VK6 on 3.5 MC, so isn't worrying any, but wonders if the ZS's can hear him. 3PG sez DX on 14 MC is simply awful. Uses 4 watts, and all he's been able to raise has been three J's (R6 from one) and three PK's, one of them four times. Some people are never satisfied. Norm read somewhere about some ham getting WAC in 3 hours 17 minutes 22½ seconds, or something, and now his ambition is to do the trick in 3 hours 17 minutes 22 seconds dead. Of course, the other fellow used about half a kilo., but that's a mere detail when you are a QRF fiend, hi!

Well, that's all, lads. Give Jack your support, same as you have done me in the past. Cheerio! Cw on the air. Vy 73 from Jim, VK3NQ.

PORTABLE POWER SUPPLY.

We have received a letter from VK6SA regarding the article printed in the November issue of "Amateur Radio," as follows:——

"The dimensions given for the transformer are very far out. Therefore I thought it would be advisable to give the correct specifications for same.

"The dimensions of core should be 1 in. x 1¼ in., built up from laminated sheets measuring 2 in. x 1 in. The primary winding (for 6 volts) consists of 50 turns of 18 gauge DCC wire, and the secondary 3000 turns of 36 gauge enamel wire.

"The primary must be well insulated from the secondary, several layers of Empire cloth being suitable. The secondary should be wound in layers, and each layer separated by a sheet of thin paper. "Greaseproof" paper is very good for the purpose. Care should be taken that the end turns of each layer are not allowed to slip down at the sides and short on to lower layers. The winding may be placed on a cardboard bobbin, or wound on a former, and afterwards taped up. In either case it is advisable to soak the completed coil in a bath of boiling paraffin wax till the latter ceases to bubble. A better insulating compound, and one that has a higher melting point, is made by mixing two parts of paraffin wax and one part of resin.

INTERNATIONAL NEWS

B.E.R.U. Contests, 1934.

Last year the VK entry in the B.E.R.U. contest (1933) was an excellent one, and the results did credit to Australian amateur radio. This year we hope to have even better figures and more stations participating, so it is up to every ham to do his or her part.

Particular notice should be paid to rule 15; this covers all members of the W.I.A. and A.R.A. (N.S.W.). Forms (the official entry and log) will shortly be available, and may be obtained from the VK official B.E.R.U. representative, VK2HC, or from the local State sub-representative. They are:—N.S.W., VK2YC; Victoria, VK3WL; Queensland, VK4GK; South Australia, VK5GR; Western Australia, VK6FO; Tasmania, VK7CH. If the request is by post, kindly forward a stamped, addressed envelope for reply, etc.

General Rules.

1. There will be three distinct contests, known as:—(a) Senior (High Power) Transmitting Contest; (b) Junior (Low Power) Transmitting Contest; (c) Reception Contest.

2. The judging of entries will be carried out by an R.S.G.B. awards committee appointed by the council of that body. In the event of any dispute the president's decision will be taken as final.

3. Competitors may enter for both the Senior and Junior contests, but individuals may win only one of the trophies. They will, however, be eligible to receive certificates of merit in both contests.

Rules for Senior (High Power) Transmitting Contest.

1. The contest will extend from 00.01 G.M.T. Saturday, February 3, to 24.00 G.M.T. Sunday, February 4, 1934, and will be continued from 00.01 G.M.T. Saturday, February 10, to 24.00 G.M.T. Sunday, February 11, 1934.

2. The contest will be open to all British subjects who are fully paid-up members of either (a) the R.S.G.B.-B.E.R.U. or (b) the Honorary Affiliated B.E.R.U. Society in that part of the Empire in which they are resident at the time of the contest.

Note.—The following are the honorary B.E.R.U. affiliated societies:—

Radio Club of Ceylon and South India, Radio Association of Jamaica, Radio Society of Great Britain, South African Radio Relay League, Wireless Institute of Australia, Hong Kong Amateur Radio Transmitting Society, North Alberta Radio Club, New Zealand Association of Radio Transmitters, Westmount Radio Club of Quebec, Malayan Amateur Radio Society (Kuala Lumpur).

3. All amateur frequency bands may be used, providing the input to the valve delivering power to the aerial is not in excess of that specified on the competitor's licence, and providing the entrant has permission to operate his station on the band (or bands) in question.

4. Only one person will be permitted to operate a specific station for the duration of the contest.

5. The declaration at the foot of the entry form must be signed by each competitor.

6. Points will be scored for each contact with an Empire station located in a separate prefix zone, providing the distance between the two stations exceeds 1000 miles. The number of points which may be claimed for each contact is listed in the prefix zone chart, which accompanies the official copy of the rules.

7. In the event of a competitor not being in a prefix zone, he shall score the same number of points for each contact as he would if located in the prefix zone nearest to his station.

8. Ten points will be added to the score obtained for each initial contact with another prefix zone, providing points for such a contact are specified in the zone chart.

9. Only one contact with a specific station may be made on each band during the contest.

10. An exchange of reports (qsa, qrk and tone) must be effected before points can be claimed for a contact.

11. Contacts with ships or with unlicensed stations, located in countries where licences are obtainable, will not be permitted to count for points. The decision as to whether a station is to be classed as unlicensed will rest with the R.S.G.B. Awards Committee.

12. The B.E.R.U. Senior Trophy will be awarded to the person scoring the highest number of points. In the event of the winner not being an individual member of the R.S.G.B.-B.E.R.U., the trophy will be forwarded to the president of his or her B.E.R.U. affiliated society, who will arrange for its award, custody and return to London prior to July 31, 1935.

13. Certificates of merit will be awarded to the first three stations in the contest, and also to the leading station in each prefix zone, providing at least three entries have been received from the zone in question.

14. Entries must reach the headquarters R.S.G.B.-B.E.R.U., 53 Victoria street, London, S.W.1, not later than April 30, 1934.

15. Persons who are not members of the R.S.G.B.-B.E.R.U. must state in writing that they were fully paid-up members of their local B.E.R.U. affiliated society at the time of the contest.

Rules for Junior (Low Power) Transmitting Contest.

The rules for this contest are the same as for the Senior contest, except for the following:—

1. The contest will extend from 00.01 G.M.T. Saturday, February 17, to 24.00 G.M.T. Sunday, February 18, and will be continued from 00.01 G.M.T. Saturday, February 24, to 24.00 G.M.T. Sunday, February 25, 1934.

2. The input to the valve delivering power to the aerial must not exceed 25 watts.

3. The B.E.R.U. Junior trophy and certificates of merit will be awarded in a similar manner to that specified under rules 12 and 13 of the Senior contest.

Rules for Reception Contest.

1. The contest extends throughout the four week-ends of February, 1934, each period extending from 00.01 G.M.T. on Saturdays to 24.00 G.M.T. on Sundays.

2. Points will be scored in a similar manner to the method defined under the Senior Transmitting Contest rules.

3. The same station may only be logged once on each band during the contest.

4. To count for points the call sign of the station being called and the strength and tone of the signals of the calling station must be logged, together with the report which is given by the calling station to the station being worked.

5. Cq and test calls will not count for points.

6. Only calls from Empire stations located outside the zone of the competing station will count for points.

7. The B.E.R.U. receiving trophy and certificates of merit will be awarded in a similar manner to that specified under rules 12 and 13 of the Senior contest.

8. The conditions of entry are as laid down in the rules of the Senior transmitting contest, except that the entrant must not possess an amateur transmitting licence.

BRITISH NOTES FOR DECEMBER, 1933

(By G6CL via G5YH via ZL4AO via VK3RJ.)

December, month of darkness and cold shacks, has produced little of outstanding interest.

The 3.5 MC contest reported upon last month was won by Mr. H. Collin, G2DQ, who, using an input of 10 watts, succeeded in scoring nearly 2000. His contacts included two with North American stations. Mr. R. A. Bartlett, G6RB, and Mr. J. Wyllie, G5YG, were placed second and third. Mr. G. C. Allen, Brs250, was the leader in the reception side of this event. The T & R Bulletin for January will contain a review of the year's work and articles on grid modulation, a four-valve Empire short-wave superhet and Magnetron oscillators.

The first part of a special article on interference elimination was published in the December issue. Copies of this issue will be sent to all non-members interested in the problem of overcoming BCL interference.

Mr. A. D. Gay described the master oscillator drive circuit used for his monthly calibration service. To correct an impression which was conveyed in the December issue of "Break In," we would mention that calibration services were first instituted by the R.S.G.B. over five years ago. The present service was not introduced following the example of other organisations. For many years British amateurs have been "frequency conscious," and this service was only introduced as a further aid to enable them to keep their frequency measuring devices accurately calibrated.

NEW ZEALAND NOTES

Via Z14AO, VK2HC, VK3RJ.

The election of the N.Z.A.R.T. office-bearers for 1934 resulted as follows: —President, Mr. W. G. Collet, Z14BP. Vice-presidents : Auckland, Mr. E. K. McKay, Z11BE; Wellington, Mr. W. M. Hall, Z12BH; Canterbury, Mr. R. T. Stanton, Z13AZ; Otago, Dr. R. B. Dodds, Z14FK. Headquarters will be located at Auckland.

Recent concessions granted by the Post and Telegraph Department allow New Zealand amateurs a high frequency telephony channel from 28,000 to 28,500 KC, and a type A2 modulated signal is permitted on amateur frequencies above 28,000 KC.

GERMAN REPORT

The following is extracted from a letter received from the German Ham organisation, DASD:—

In March this year the German Government decreed a general interdiction of amateur transmissions. Organisatoric questions should be cleared without any distortion. In May about 30 hard-boiled hams got a preliminary licence, in part even with their ancient calls.

In the meantime the DASD (Deutscher Amateur Sende Dienst) was acknowledged by the Government to be the only authoritative office for all amateur things. Licences are available only by the DASD. Like their friends in foreign countries, the German amateurs are able to work in future in the open light of publicity, and we owe to our Government sincere thanks for freeing the German short wave enthusiasts.

After having been asked from the members some time before inquiries for licences, in the morning of August 27 about 180 German amateurs, the licences were lying on the table. During a general meeting on 80 metres this day the fellow-world had been told by "qst" the pleasing fact that the final licensation of amateur transmitting in Germany had been done. The giving of licences is to be continued according to the coming inquiries.

At last we are not forced furthermore to hide fearfully our qra's and names. Already in the next issue of the Radio Amateur Call Book numerous addresses of DASD amateurs will be published, so that it will be possible for our foreign friends to find immediately the qra of any heard D station. Qsl cards, however, will be exchanged now, as before, without fee.

The DASD address is:—Deutscher Amateur Sende Dienst, Berlin, W.57, Blumenthalstr. 19.

R.A.A.F. Wireless Reserve Notes

Federal Notes, by the C.O.

The year 1933 has certainly produced many changes for the betterment of the Reserve. The major issue, as we all know, has been the change over from an amateur Reserve to the official Air Force Reserve, and the enrolling of experimenters into that Reserve. This change has produced many advantages over the old system, and the unit has already benefited by them. The Victorian District was the first to get going, and has proved an interesting experiment prior to the organising of the other districts. It is expected that the majority of States will have their members fully enrolled early this year.

In order that every member will have a definite aim each year a complete training syllabus and an annual examination for same have been drawn up, and a copy of each has been supplied to the District Commanders. These will simplify the training considerably, as each D.C. will understand exactly what is required of the members each year, and will be able to arrange his own training programme to suit. As long as he covers the necessary ground in 12 months to fulfil the programme he can make his own arrangements as to the educational system best suited for his district. After that period practical examinations will be held, and each reservist will be required to pass out as being up to standard.

There are many interesting subjects listed on the programme outside W/T operating, such as aircraft W/T apparatus, ground signalling to aircraft, etc. They will be treated in books, leaflets and papers, and will be issued to each individual. Reservists will be required to self-educate, to a certain extent, in several instances, but all subjects will be of great interest and value to members. The object held in view by the Air Board is the avoidance of any weary repetition and the creating of enthusiasm for learning. It might be said that the member who passes these examinations will be entitled to look upon himself as an operator of first-class ability, and one with a good knowledge of signal procedure and organisation.

Under this new training scheme provision has been made for an Air Force W/T station, operated by the permanent operators, as the Reserve H.Q. station for the training of the D.C.'s and issuing of orders. This has many advantages, including the promotion of a definite understanding between the permanent and reserve forces. This change is expected to take place early in January. The systems and routine of working will be similar to that used at the C.O.'s station at present.

For the third time during the past four months the Ramsay Trophy test has been broadcast from 1A1. This time with success, according to the reports received. It has been unfortunate that the previous tests were failures owing to poor receiving conditions. However, the third test was fair to all, and from the reports received the winner of the Cup will be decided. The results will be announced next month. Next year the winning of the trophy will not be so easy! It will be awarded on the year's work and general efficiency, as based on the D.C.'s quarterly reports.

Arrangements are being made for the training of members in the Eastern States, especially N.S.W. and Victoria, at one of the local squadrons, for periods up to three weeks annually. This should prove mighty interesting, and members will have an opportunity of learning all about ground and aircraft W/T equipment, as well as the other signalling systems used by the R.A.A.F. In order to provide for the other districts' members' education in these subjects inquiries are being made at H.Q. into the possibilities of instruction whenever aircraft fitted with W/T apparatus visits their district. However, final arrangements for Interstate training have not been made as yet, but it is hoped to arrive at something that will prove equally as interesting as for the Eastern States.

The month of January commences the traffic awards, as announced last issue. In February the first awards will be made. From a certain authority I am informed that Victoria has already started the ball rolling, and several hundred messages are being handled weekly. This shows fine spirit and enthusiasm, but since the awards are based on the ratio of mem-

bership to messages the other districts stand an equal chance, and some dark horses might give the Victorian fellows a big surprise when the awards are announced. Therefore "go to it," and make the totals bigger, and be sure of your district, section and self!

SIXTH DISTRICT NOTES.

By 6MN.

6FM, at Wiluna, had his mast struck by lightning, and was off the air for ten days. No other damage done, however, and is back again with the usual sock. 6FL has been shifting goods and chattels, and will soon be heard again; he is still in Geraldton, with a fb rotary convertor working off the D.C. mains. 6BO, at Carnavon cannot work simultaneously with the local cinema. He reports overseas stations coming in well, but finds it hard to work VMF; very patchy. One watch signals are R8-9 and the next not a sound. 6FT, 6RL, 6LK all studying for first-class commercial tickets, and are off Reserve work pro tem. Hope to have 6RA and 6RW enrolled by next issue. 6LJ very enthusiastic cricket player; so radio takes second place. It's a pity such a good fist should be wasted wielding the willow and not the brass! 6Z1 and 6Z2 maintain regular watches, and pile up traffic totals. Both stations are moving to 6555 kcs. A meeting of the local Reservists is to be held in 6Z1's shack in January. Even though VMF has a small membership that is not going to stop them returning the highest membership-traffic returns and bag a few awards.

SEVENTH DISTRICT NOTES.

By 7Z1-7RC.

It was rather unfortunate that 7Z1 was unable to take part in the Ramsay Trophy broadcast on December 3rd, but he was away from home for the day. However, by being absent, he left the way clear for someone else to win it (!) We now have five very active members here who are proficient in the R.A.A.F. procedure. A broadcast in procedure work is given each week to these members by 7Z3 (7JW), who obtains these from 7Z1 on Saturdays and relays them on Sundays on 3.5 mc. According to some of our members the other district will not be in the monthly awards in "Amateur Radio," except to come after VMG in the list; but that remains to be seen! After the New Year it is intended to make the broadcasts on a week-night and keep the Sunday mornings open for traffic and exercises. Any amateurs desirous of joining up with Tasmanian District of the Reserve are invited to apply to VK7RC for further particulars.

A HIGH QUALITY AUDIO AMPLIFIER

By Bruce Mann, Quambatook.

1.—Level Response Curve.

Part II.*

Each speaker of a multiple group has a different resonant frequency. To cite an example, say a pair are resonant at 80 and 100 cycles respectively, and a 100 cycle note comes through, the 100 cycle speaker will move very freely and exaggerate that note. Now the voice coil of a speaker acts as a dynamo, generating an EMF opposite in phase to the signal current. The resonant speaker generates a large EMF which is opposite in phase to the signal. Now, as the speakers are connected in parallel, this back EMF is fed to the non-resonant speakers, and reduces their amplitude to such an extent that the overall output of the combination is practically level.

2.—Greater Efficiency.

For single speakers their response is governed by their mass and stiffness. Thus, to maintain the stiffness, the mass increases as the square of the area. Now, speaking broadly, efficiency increases with the area, thus to increase efficiency by increasing the size ruins the frequency response. But by using multiple small speakers the area is increased without increasing the mass disproportionately, thus greater area is obtained without spoiling the frequency response. With dual speakers the efficiency is as the square of one, and with triple speaker almost as the cube of one.

3.—Greater Power Handling Ability.

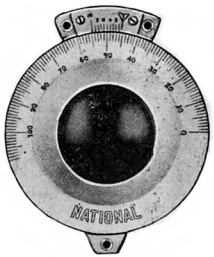
In any dynamic speaker the amplitude of the voice coil is definitely limited. Thus with the maximum permissible amplitude dual speakers will give approximately four times the output of a single speaker.

4.—Less Harmonic Distortion.

Dynamic speaker field gaps are not excited right across their width; the

*Continued from page 25, Dec., 1933 issue.

PRECISION FOR H. F.



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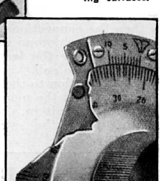

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flux density falls off towards the edges of the gap. It can be seen, therefore, that on large volume the voice coil enters the region of weaker flux, the voice coil movement becomes disproportionate to the signal, and harmonic distortion is the result. However, with dual speakers the amplitude for the same output as a single speaker is only one-quarter, so harmonic distortion is very much less likely to occur.

5.—Better Attack.

Oscillograph tests prove that a single speaker will make about five or six vibrations, when only one is supplied by the signal at or near its resonant frequency. If, in a multiple arrangement, one speaker makes a spurious excursion, it generates an EMF that feeds current to the paralleled speakers in opposite phase, so that they move in opposite directions and balance out the introduced vibrations.

In conclusion, just a few points on the mounting and balancing of the speakers to obtain the best results.

Multiple speakers should always be mounted as close together as possible on the baffle.

As air waves must have as short and as free a path between the cones as possible, no grill cloth on the baffle should intervene between them.

The speakers must be connected so that their cones move in phase. To test for this, excite the fields and connect a battery across the moving coils. If each cone jumps in the same direction, then the connections are correct. If, however, one jumps in the wrong direction, reverse the leads to either the field or voice coil.

Careful attention to the adjustments of the circuit and the mounting of the speakers will result in a finished amplifier of which the owner will be justly proud.

RANDOM RAMBLINGS

By QRZ.

Five Minutes on 20 and 40.

Let's try 40 first. . . . OK. . . . Yes, thought it was a KA; real typical T1 note! . . . 3ZX! what is he doing back on the air again? . . . How the heck does KA1HR get that note? Anyway, it's a bit better than the old chaffcutter. Swell ops there. . . . This first sounds like 2FY. Pick it out of a hundred. . . . ZL1GX on CC or MOPA! Wonder if he is still QRP with 75 watts. . . . Static fairly bad to-night. . . . Why doesn't 3ZL call CQ instead of CEK? . . . Not much doing on 40. Let's try 20. . . . 3KX calling YH1RV. Wonder how many watts makes that sig R9 here! . . . OK1BC calling 2QA—was R7 here last week, but only R1 now. . . . There's 5LD right under 3KX now; note pretty rough too. . . . That was 2XU just signed off. Wonder if it's a G or an OA he is working. . . . 4RV has nice note and fist down on this band. . . . South Americans seem very scarce. . . . 2HW started up now. . . . It's good to see the number of VK's using CC now. . . . 2HY now. That's a better note than last year's, OM! . . . What's this—CQ DX, everybody's calling. . . . 3HG R9; guess he isn't in the QRP club now! Nice, hefty dc note. . . . 3JJ's the lucky one; that's G2YL calling him. . . . Why can't I hear YH1RV? 3KX is still working him. . . . 5JO, CC under VK2YL, who sounds like that raspberry I've heard people talk about! . . . 5MU must be ill; I haven't heard him to-night. . . . Wish some of these VK stations wouldn't sound so much like DX. . . . Let's try 40 again. . . . Yanks pretty scarce this time of the year. . . . H'm! only another commercial in the band. . . . That's fb CC ZL3AR. . . . Gee! what's KA3AA using there? Blocks detector here. . . . Another of those optimists, 7PA calling KA1HR. . . . That note is very ripply, 2DA. . . . Yes. 2VG has some sock. . . . There's 2EG working 2XQ, with bugs running warmish. . . . That's KA8AA now with another type of note somewhere in the vicinity of 500 cycles. . . . Let's try 20 again before switching off. . . . Pity YI7RK doesn't use CC; could copy him fb then. . . . Oh, gosh! hear that power leak. . . . QRT now, and QSK. . . . 73 and success to "Amateur Radio," the hams' own magazine.

[Dear "QRZ,"—We do not know who you are, nor do we care: but, since you elect to remain among us, we suggest that you carry on in future issues with criticisms, as above. There is certainly plenty of room for a scribe such as you.—Ed.]

ZS4U is particularly anxious to QSO VK stations, whom he asks to QRX for him on 20 metres from 0800 G.M.T. to 1100 G.M.T. every day except Sundays.

Why Not Try the 28 MC?

By G. B. Ragless, VK5GR.

With the present rush to 56 mc nearly everyone seems to have forgotten that we amateurs still possess a region near 10 metres known as the 28 mc band. One thing in favour of the 28 mc band is the fact that a very small amount of new gear is needed, for most receivers employed on 7 and 14 mc work quite well. In fact, it is my firm opinion that the stability of the usual ham receiver can be gauged by its performance on 28 mc.

One thing that attracts some hams to the higher frequencies is because there are greater technical difficulties to be overcome.

Recent issues of "QST" show that the 28 mc band has been very popular in the "States" during the past few months, good contacts being reported over the whole country. In the RSCB "Bull" one reads of the fine work done all over Europe (also Africa), where the number of active 28 mc stations is very large. Both of these parts have been experiencing summer, and it seems that for consistent 200-2000-mile work that is the best period of the year. We have just commenced the same season, and can reasonably expect conditions to be suitable for Interstate working, as has been the case during the two previous summers.

Perhaps a few particulars of the results here in South Australia during last November and December will prove of interest and assist anyone wishing to start up.

The best time for Interstate seemed to be between 9 a.m. and 5 p.m. AMT, when all States have been heard during the one Sunday!

Generally VK4 was the most consistent, one Queenslander remaining R8 for four hours, and contact could be made continually.

Victorians reached R8/9, but were apt to fade, while VK2 was consistent, and received after darkness on odd occasions. West Australia and Tasmania were up to standard, but, due to the small number of stations operating, no very definite information about them could be obtained.

Going on my own observations, I feel certain that no other band could provide better Interstate signals around midday during the summer months.

Most of the work on 28 mc is done at week-ends to make use of daylight between points, but for dx (with exception of Asia) it is probable that one end would have to be in or near darkness.

Although only the 2800-2900 kc half of the band is generally used, QRM is practically unknown (!), and QRN is nil. This makes it easy to copy weak signals.

Strong harmonics from 14 mc Interstate stations were heard, also JNB's when conditions were very good.

Give it a try, gang, during the next few months. Remember strong ground waves for portable work, good Interstate signals, and possible dx, all under perfect operating conditions.

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Join now! Drop a note to the Secretary, W.I.A., Kelvin Hall, Collins place, Melbourne, C1, and request him to send you all details.

Interested persons Interstate will find the address of their State W.I.A. H.Q. elsewhere in this issue.

HARMONICS.

YI7RK reports he is QRX for VK and ZL Qso's each day from 1200 to 1300 GMT on 14 MC band. QSL, via YI2FU, R. A. Underhill, 70 (Br) Squadron, R.A.F., Baghdad, Iraq, Mesopotamia.—VK5FD.

* * * *

Here's a gra that some chaps might be looking for. XU1A is the call of R. J. Prata, c/o Hong Kong and Shanghai Banking Corporation, Shameen, Canton, China.

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Rates.—To Members of W.I.A. and Affiliated Bodies, 2d. per line or part. Non-members, 4d. per line or part.

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